09/904993

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PATENT, TRADEMARK, COPYRIGHT AND RELATED INTELLECTUAL PROPERTY LAW

April 27, 2006

Attn: The Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Re:	U.S. Patent No.:	6,946,201 B2
	Issued:	September 20, 2005
	Title:	CHROMIUM (VI)-FREE CONVERSION LAYER AND METHOD FOR PRODUCING IT
	Inventors:	Patricia Preikschat et al.
	Our Docket No.:	31716US1

Sir:

A Certificate of Correction under 35 U.S.C. 254 is hereby requested to correct Patent Office printing errors in the above-identified patent. Enclosed herewith is a proposed Certificate of Correction (Form No. PTO-1050), copies of four previously submitted replacement drawing sheets containing Figs. 1-4, and documentation in support of the proposed corrections for consideration.

It is requested that the Certificate of Correction be completed and mailed at an early date to the undersigned attorney of record.

Respectfully submitted,

By John P. Murtaugh
John P. Murtaugh, Reg. No. 34226

JPM/ck
Enclosures: Form PTO/SB/44

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date indicated below.

John P. Murtaugh
Name of Attorney for Applicant(s)

May 1, 2006 John P. Murtaugh
Date Signature of Attorney

PTO/SB/44 (07-03)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,946,201 B2
DATED : September 20, 2005
INVENTOR(S) : Patricia Preikschat et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page

(*) Notice:, after "days.", please insert --This patent is subject to a terminal disclaimer--.

(63) Related U.S. Application Data, after "filed", please delete --as.....6,287,704" and insert therefor -- 3/29/1999, now U.S. Pat. No. 6,287,704, which is a 371 of PCT/DE97/00800 filed 4/18/1997--.

Other Publications,"Kinetics.....1581.", line 2, after "Cr3", please delete "0" and insert therefor --O--.

Title Page 2

Other Publications, "Database.....Zusammenfussung.", line 2, after "GB;", please insert --Class E31,--.

Other Publications, "Patricia Preikschat.....1-10.", line 1, please delete "Udner" and insert therefor -- Under--.

Drawings

Sheets 1-4, Figs. 1-4, please delete printed drawing sheets (Figs. 1-4) and replace with attached replacement drawing sheets (Figs. 1-4) which were previously submitted as replacement drawings (color photographs together with black-and-white photocopies of same) in Amendment A filed October 15, 2002.

MAILING ADDRESS OF SENDER: John P. Murtaugh
Pearne & Gordon LLP
1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108

PATENT NO. 6,946,201 B2

No. of additional copies
⇨ 0

MAY 9 2006

PTO/SB/44 (07-03)
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,946,201 B2
DATED : September 20, 2005
INVENTOR(S) : Patricia Preikschat et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Specification

Column 8, line 63, please delete "$1/(1+p_1 \cdot m_{ZnCrO})^{2}$" and insert therefor --$1/(1+p_1 \cdot m_{ZnCrO})^{2}$--.
Column 9, line 5, after "(C", please delete "o_{Zn}^{2}", and insert therefor --$o,_{Zn}^{2}$--.
Column 9, line 20, please delete "P_2 x mZcrO" and insert therefor --p_2 x m_{ZnCrO}--.

Claim 27

Line 1, after "claim 25,", please delete --claim 25,--.

Claim 46

Line 14, please delete "a gents" and insert therefor --agents--.

Claim 65

Line 6, please delete "In" and insert therefor --in--.

Claim 77

Line 1, after "claim", please insert --65,--.

MAILING ADDRESS OF SENDER: John P. Murtaugh
Pearne & Gordon LLP
1801 East 9th Street
Suite 1200
Cleveland, Ohio 44114-3108

PATENT NO. 6,946,201 B2

No. of additional copies
⇨ 0

MAY 9 2006

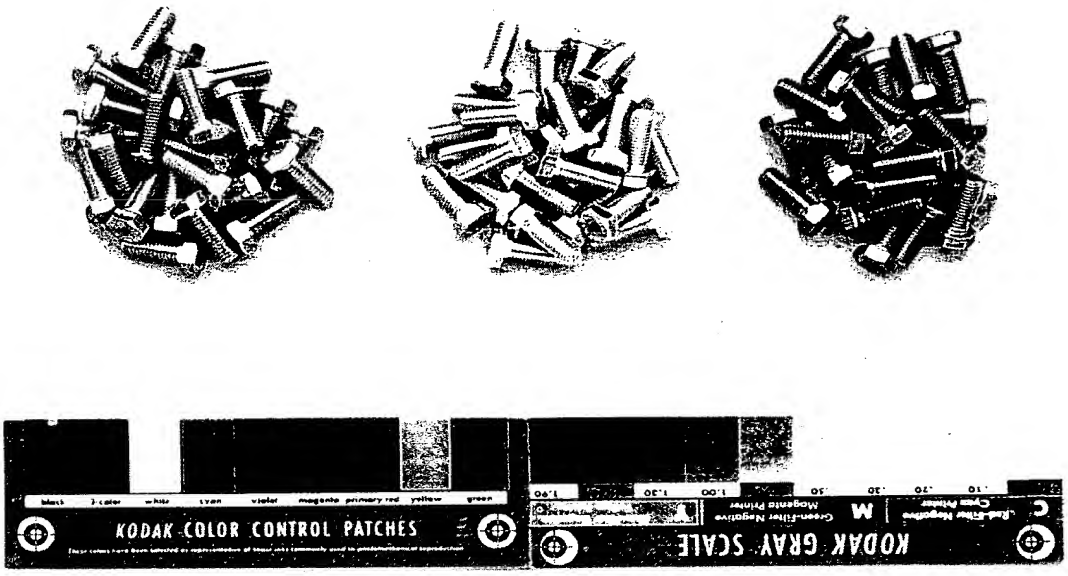

Fig. 1

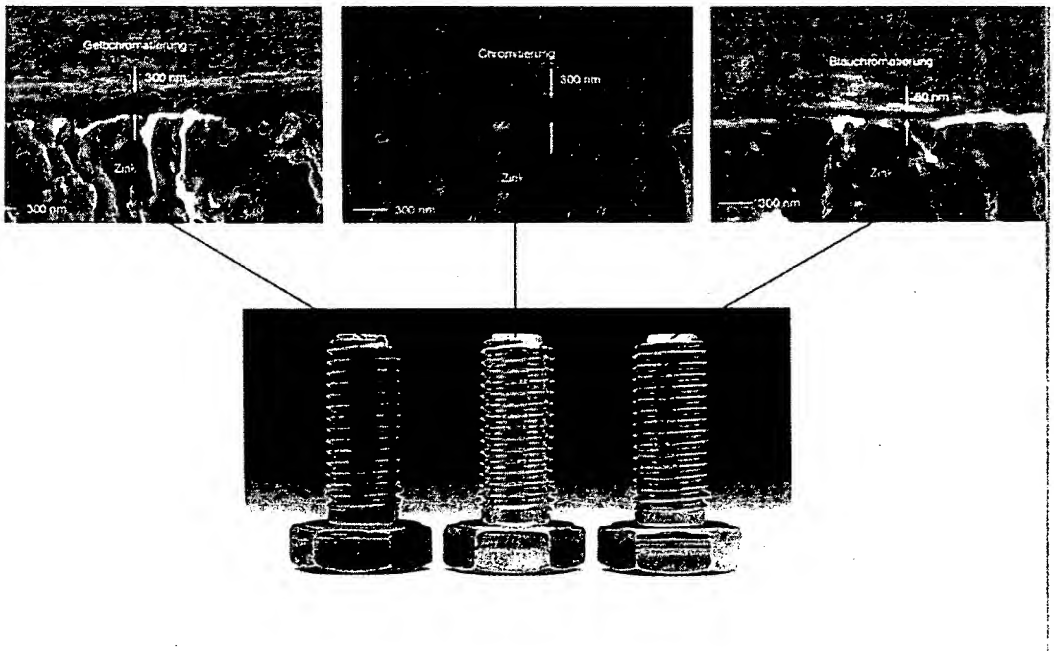

Fig. 2

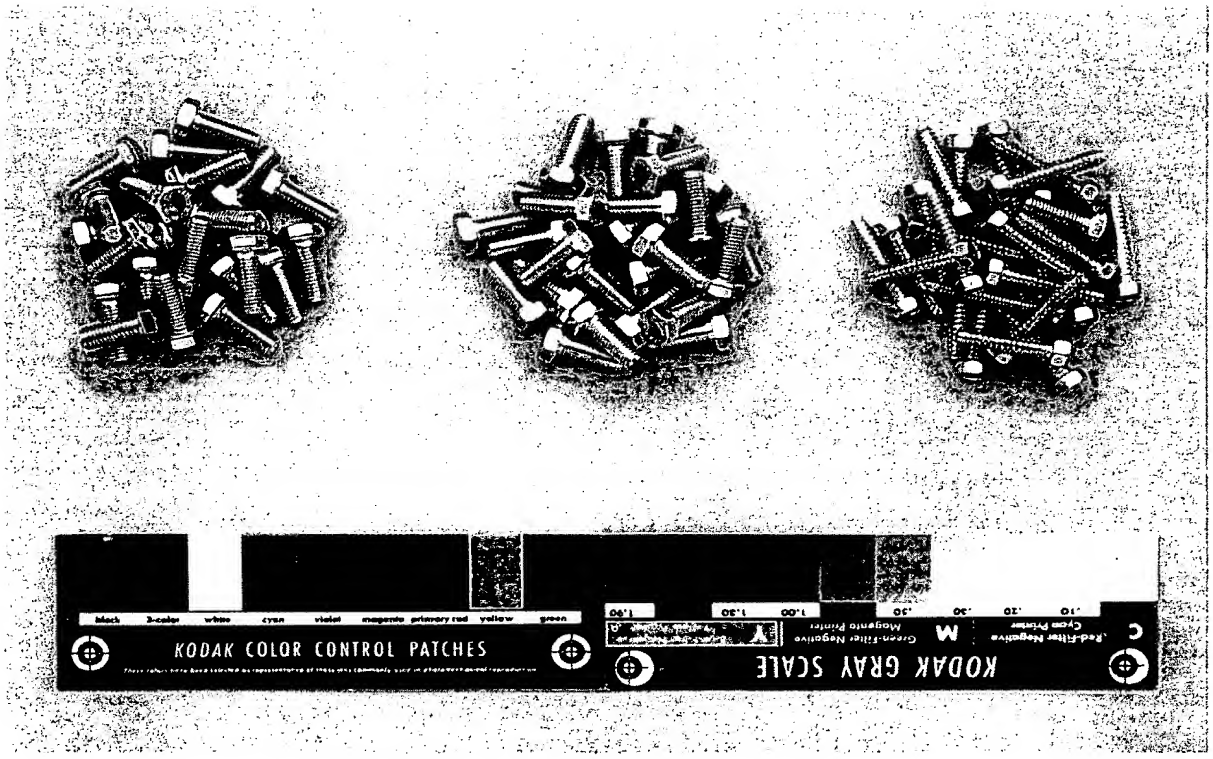

Fig. 3

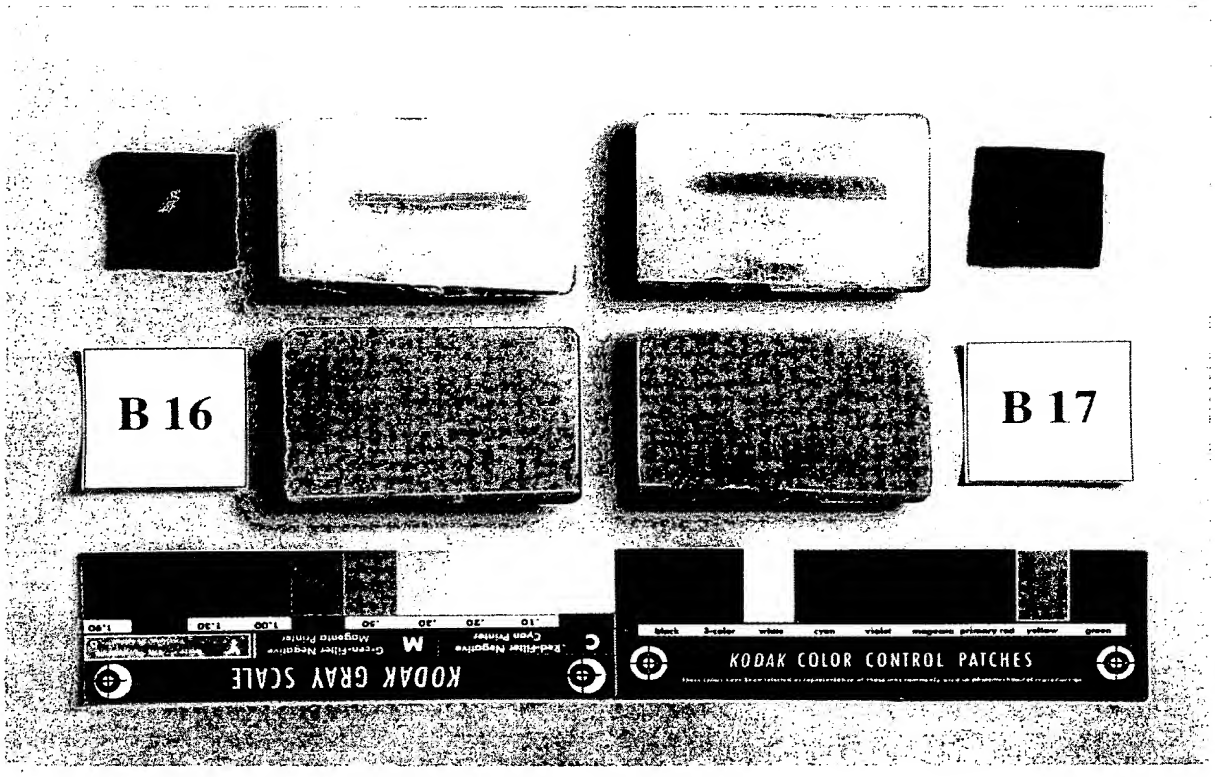

Fig. 4

PTO/SB/26 (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A PRIOR PATENT

Docket Number (Optional): 31716US1

In re Application of: Patricia Preikschat et al.
Application No.: 09/904,993
Filed: July 13, 2001
For: CHROMIUM(VI)-FREE CONVERSION LAYER AND METHOD FOR PRODUCING IT
Surtec Produkte Und System für Die Oberflachenbehandlung GmbH

The owner*, _____, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application, which would extend beyond the expiration date of the full statutory term defined in 35 U.S.C. 154 and 173, as presently shortened by any terminal disclaimer, of prior Patent No. 6,287,704B1. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the prior patent, as presently shortened by any terminal disclaimer, in the event that it later: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of an organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☒ The undersigned is an attorney or agent of record.

December 2, 2003
Signature Date

Steven J. Solomon, Reg. No. 48719
Typed or printed name

216-579-1700
Telephone Number

☒ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner). Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/904,993	07/13/2001	1775	579	31716US1	38	36	5

000116
PEARNE & GORDON LLP
526 SUPERIOR AVENUE EAST
SUITE 1200
CLEVELAND, OH 44114-1484

CONFIRMATION NO. 3817

FILING RECEIPT

OC000000006486342

Date Mailed: 08/28/2001

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Patricia Preikschat, Trebur, GERMANY;
Rolf Jansen, Trebur, GERMANY;
Peter Hulser, Trebur, GERMANY;

Domestic Priority data as claimed by applicant

THIS APPLICATION IS A CON OF 09/171,558 03/29/1999 PAT 6,287,704
WHICH IS A 371 OF PCT/DE97/00800 04/18/1997

Foreign Applications

GERMANY 196 15 664 5 04/19/1996

If Required, Foreign Filing License Granted 08/28/2001

Projected Publication Date: To Be Determined - pending completion of Corrected Papers

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

Chromium (VI)-free conversion layer and method for producing it

Notice of References Cited	Application/Control No. 09/904,993	Applicant(s)/Patent Under Reexamination PREIKSCHAT ET AL.	
	Examiner Robert R. Koehler	Art Unit 1775	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,368,655-B1	11-1994	Klos	148/267
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	"Kinetics of Formation and Dissociation of [Cr3O(O2CCH3)6(urea)3]+: An Example of Statistically Controlled Kinetics and Equilibrium," John P. Bourke, et al., Inorganic Chemistry; Vol. 35, No. 6, March 13, 1996; pages 1577-1581.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

APPLICANTS' COPY

Form PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 31716US1	SERIAL NO. 09/904,993
INFORMATION DISCLOSURE CITATION BY APPLICANT *(USE SEVERAL SHEETS IF NECESSARY)* **Page 2 of 4**		APPLICANT: **Patricia Preikschat et al.**	
		FILING DATE: 7-13-01	GROUP ART UNIT: 1775

U.S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass	Filing Date If Appropriate
RRK	A	3,932,198	11/1976	G. Schneider			
RRK	B	4,126,490	11/1978	K. Aoki			
RRK	C	4,141,758	2/1979	W. C. Glassman et al.			
RRK	D	4,171,231	10/1979	C. V. Bishop et al.			
RRK	E	4,263,059	4/1981	D. J. Guhde et al.			
RRK	F	4,349,392	9/1982	R. J. Huvar			
RRK	G	4,359,345	11/1982	B. DaFonte, Jr.			
RRK	H	4,359,346	11/1982	B. DaFonte, Jr.			
RRK	I	4,359,347	11/1982	B. DaFonte, Jr.			
RRK	J	4,359,348	11/1982	D. E. Crotty			
RRK	K	4,367,099	1/1983	R. J. Lash et al.			

MAY 9 2006

Form PTO-1449 | U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. 31716US1	SERIAL NO. 09/904,993
APPLICANT: Patricia Preikschat, et al.	
FILING DATE: July 13, 2001	GROUP ART UNIT: 1775

INFORMATION DISCLOSURE CITATION BY APPLICANT
(USE SEVERAL SHEETS IF NECESSARY)

OIPE JC1 DEC 0 4 2003 PATENT & TRADEMARK OFFICE

RECEIVED DEC 10 2003 TC 1700

U.S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass	Filing Date If Appropriate
RRK	A	4,298,404	11/1981	Greene	148	247	
RRK	B	4,444,601	04/1984	Greene	428	658	
	C						
	D						
	E						
	F						
	G						
	H						

FOREIGN PATENT DOCUMENTS

		Document No.	Date	Country	Class	Subclass	Translation
	J						

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

RRK	K	Arthur Schaier, First Request For Reexamination of U.S. Patent No. 6,287,704 (granted as re-exam serial No. 90/006,211), Request filed in U.S. Patent Office on January 25, 2002, pages 1-118.
RRK	L	Arthur Schaier, Submission of Prior Art Under 37 CFR 1.501 filed in re-exam proceeding serial No. 90/006,211, filed in U.S. Patent Office on March 11, 2002, pages 1-4.
RRK	M	Patricia Preikschat, Declaration of Patricia Preikschat Under Rule 1.132 filed in re-exam proceeding serial No. 90/006,211, dated December 4, 2002, pages 1-10.
RRK	N	Arthur Schaier, Second Request For Reexamination of U.S. Patent No. 6,287,704 (granted as re-exam serial No. 90/006,672), filed in U.S. Patent Office on June 20, 2003, pages 1-25.
RRK	O	Sudha Damji, Declaration of Sudha Damji and attached Exhibit A, dated June 18, 2003, (submitted with the second request for reexamination of U.S. Patent No. 6,287,704), filed in re-exam proceeding serial No. 90/006,672 on June 20, 2003, pages 1-33.

Examiner: Robert R. Koehler | Date Considered January 15, 2004

*Examiner: Initial if reference considered, regardless of whether citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

MAY 9 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Patricia Preikschat et al.

Serial No.: 09/904,993 Art Unit: 1775

Filed: July 13, 2001

Title: CHROMIUM(VI)-FREE CONVERSION LAYER AND METHOD FOR PRODUCING IT

Examiner: R. Koehler

Docket No.: 31716US1

AMENDMENT A
(Filed in response to Paper No. 7)

Commissioner for Patents
Washington D.C. 20231

Sir:

As set forth in the accompanying cover letter, this Amendment is being filed in response to the Office action mailed April 24, 2002. The period for reply expired on July 24, 2002. Therefore Applicant hereby requests and petitions for a three (3) month extension of time to respond, up to and including October 24, 2002.

Applicant has added 25 additional new claims to the application in excess of 20. Enclosed is a check to cover the $225 extra-claim fee and the $460 extension-of-time fee.

Please amend the application as follows.

VIA HAND-DELIVERY TO TECHNOLOGY CENTER 1700
ATTN: Examiner Robert Kohler, Art Unit 1775

I hereby certify that this correspondence is being hand-delivered to Technology Center 1700 at the U.S. Patent and Trademark Office to the attention of Examiner Robert Kohler in Art Unit 1775, on the date indicated below.

Printed Name of Person Signing Certificate

Date Signature

IN THE ABSTRACT:

Please cancel the pending abstract, and substitute the enclosed amended abstract therefor.

IN THE DRAWINGS:

New copies of Figures 1 to 4 are included in triplicate as color photographs in compliance with 37 CFR § 1.84(b)(2). A Petition Under Rule 1.84(a)(2) to accept color photographs and the $130.00 petition fee are also enclosed, together with black-and-white photocopies of the color photographs.

New copies of Figures 5 to 36 are also being provided with a different identification key which clearly associates each profile with the proper element. The marker symbols in the key have been circled in red, as has a representative marker symbol on each line of each figure. The Examiner's approval of these drawings is requested.

IN THE SPECIFICATION:

Please cancel the specification pages 1-23, and insert the enclosed substitute specification, pages 1-24, therefor pursuant to Rule 1.125(b). The substitute specification contains no new matter. One clean copy of the substitute specification is provided, as well as one marked-up copy showing the changes in the substitute specification relative to the specification as it stood immediately prior to this amendment. (The pagination of the clean and marked-up copies are different due to different fonts being used for each).

IN THE CLAIMS:

Please amend claims 1-11, 13-22, and 24-28 as follows.

1. (amended) A conversion layer comprising chromium(III), said conversion layer being chromium(VI)-free, said conversion layer being a substantially coherent conversion layer on zinc or a zinc alloy, wherein even in the absence of silicate, cerium, aluminum and borate said conversion layer presents a corrosion protection of about 100 to 1000 h in the salt spray test according to DIN 50021 SS or ASTM B 117-73 until first attack according to DIN 50961 Chapter 10; said conversion layer being hard and resistant to wiping.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Patricia Preikschat et al.

Serial No.: 09/904,993 Art Unit: 1775

Filed: July 13, 2001

Title: CHROMIUM (VI)-FREE CONVERSION LAYER AND METHOD FOR PRODUCING IT

Examiner: R. Koehler

Docket No.: 31716US1

PETITION UNDER 37 CFR 1.84(a)(2)
TO ACCEPT COLOR PHOTOGRAPHS
(Filed in response to Paper No. 7)

Commissioner for Patents
Washington D.C. 20231

Sir:

Pursuant to 37 CFR 1.84, Applicant hereby petitions and requests that the Office accept color photographs in the above-identified case. The $130.00 petition fee is included. The conditions for accepting color photographs have been met. Three copies of each color photograph are included developed on A4-sized paper in compliance with Rule 1.84(e)-(f). Black-and-white photocopies of the color photographs are also included.

VIA HAND-DELIVERY TO TECHNOLOGY CENTER 1700
ATTN: Examiner Robert Koehler, Art Unit 1775

I hereby certify that this correspondence is being hand-delivered to Technology Center 1700 at the U.S. Patent and Trademark Office to the attention of Examiner Robert Kohler in Art Unit 1775, on the date indicated below.

Printed Name of Person Signing Certificate

Date Signature

Color photographs are necessary in this case to compare the colors of the inventive coating and other prior art coatings. The discussion in the specification comparing the various colors would be meaningless if the photographs were available only in black and white.

If there are any fees required by this communication not covered by an enclosed check, please charge such fees to our Deposit Account No. 16-0820, order No. 31716US1.

Respectfully submitted,
PEARNE & GORDON LLP

By: _____
Steven J. Solomon, Reg. No. 48719

526 Superior Avenue East, Suite 1200
Cleveland, Ohio 44114-1484
(216) 579-1700

Date: October 15, 2002

clean copy of substitute specification

The novel greenish chromate layer had a layer thickness of approx. 800 nm and was produced by a process not involving any chromium(VI) and could be proven to be chromium(VI)-free.

The production method according to Example 1 for the novel, greenish chromium(VI)-free chromation is not very economical for conventional plants due to the relatively high temperature of the process solution. Further theoretical reflections concerning chromium(VI)-free chromate coating and further trials finally resulted in economical production conditions.

Theoretical Reflections Concerning Chromium(VI)-Free Chromation

Chromate coating of zinc takes place by the formation of a so-called conversion layer on the zinc surface, i.e. the zinc surface chemically reacts with the chromate coating solution and is converted into a chromate layer. The formation of conversion layers is a dynamic process beyond chemical equilibrium. In order to describe the underlying processes, one must therefore employ chemical kinetics. By the especially established kinetic model it was possible to obtain starting points in order to optimise the present invention.

Conversion layer formation in a chromium(III)-based chromate coating solution may be described by means of two reaction equations:

I Elementary zinc passes into solution due to acid attack:

$$Zn + 2\,H^+ \xrightarrow{k_1} Zn^{2+} + H_2$$

II and precipitates on the zinc surface as zinc chromium oxide together with chromium(III):

$$Zn^{2+} + x\,Cr(III) + y\,H_2O \xrightarrow{k_2} 6\;ZnCr_xO_y + 2y\,H^+$$

The kinetic model must encompass differential equations for the concentration developments of Zn^{2+}, H+, Cr(III) and for the thickness growth of the ZnCrO layer. In the reaction rate starting points it was taken into consideration by inserting the term $1/(1+p_1 \cdot m_{ZnCrO})^2$ that Reaction I is increasingly slowed down by the growing passive layer. p_1 is a measure for tightness of the layer.

$$\frac{dc_{Zn^{2+}}}{dt} = k_1 \times c_{H^+} /(1 + p_1 \times m_{ZnCrO})^2 \qquad \text{Reaction I}$$
$$-k_2 \times c_{Zn^{2+}} \times c_{Cr(III)} + k_3 \times c_{H^+} \times \tanh(p_2 \times m_{ZnCrO}) \qquad \text{Reaction II}$$
$$+k_T \times (c_{0,Zn^{2+}} - c_{Zn^{2+}}) \qquad \text{Mass transfer}$$

$$\frac{dc_{H^+}}{dt} = -2k_1 \times c_{H^+} /(1 + p_1 \times m_{ZnCrO})^2 \qquad \text{Reaction I}$$
$$+2yk_2 \times c_{Zn^{2+}} \times c_{Cr(III)} - 2yk_3 \times c_{H^+} \times \tanh(p_2 \times m_{ZnCrO}) \qquad \text{Reaction II}$$
$$+k_T \times (c_{0,H^+} - c_{H^+}) \qquad \text{Mass transfer}$$

$$\frac{dc_{Cr(III)}}{dt} = -xk_2 \times c_{Zn^{2+}} \times c_{Cr(III)} + xk_3 \times c_{H^+} \times \tanh(p_2 \times m_{ZnCrO}) \qquad \text{Reaction II}$$
$$+k_T \times (c_{0,Cr(III)} - c_{Cr(III)}) \qquad \text{Mass transfer}$$

$$\frac{dm_{ZnCrO}}{dt} = k_2 \times c_{Zn^{2+}} \times c_{Cr(III)} - k_3 \times c_{H^+} \times \tanh(p_2 \times m_{ZnCrO}) \qquad \text{Reaction II}$$

The term $\tanh(p_2 \times m_{ZnCrO})$ represents the indispensable precondition of reverse reaction II, namely the presence of ZnCrO. The tanh function provides for a smooth transition from 0 to 1, which may be adjusted with p_2. The differential equation system was resolved numerically by means of a computer. As a result, the layer thickness developments and the concentration developments over time were obtained. As starting values for time $t_0 = 0$ there were employed:

$c_{0,Zn2}^+$	=	0	
$c_{0,H}^+$	=	10-2 mol/l	(pH 2)
$c_{0,Cr(III)}$	=	0.5 mol/l	
$m_{0,ZnCrO}$	=	0	

In Fig.38 the layer thickness developments for various values of the rate constant k_j are represented. For good corrosion protection, the passive layer should have maximum possible thickness and at the same time compactness.

Fig. 38 shows a computer simulation of the kinetic model for chromate coating of zinc for various rate constants.

The faster the initial dissolution of zinc (rate constant k_1) is and the faster the dissolved zinc precipitates with the chromium(III) (rate constant k_2), the thicker the chromate layer will

acids, siccatives, dispersing agents, organic polymers, diols, triols, monocarboxylic acids, carbon black, metal chromogenic agents, glycin, and cobalt siccatives.

Claim 37 (previously presented): A conversion layer according to claim 1, having a chromium index greater than 10, the chromium index being defined as the average chromium content in said conversion layer greater than 1% chromium, multiplied by the thickness of said conversion layer.

Claim 38 (previously presented): A conversion layer according to claim 3, wherein said anions include an anion selected from the group consisting of halide ions, sulfurous ions, nitrate ions, phosphoric ions, diphosphate ions, linear and/or cyclic oligophosphate ions, linear and/or cyclic polyphosphate ions, hydrogen phosphate ions, carboxylic acid anions, and silicon-containing anions.

Claim 39 (currently amended): A conversion layer according to claim 3, wherein said additional metal compounds include at least one 1- to 6-valent metal compound selected from the group consisting of compounds of Na, Ag, Al, Co, Ni, Fe, Ga, In, lanthanides, Zr[[;]], Sc, Ti, V, Cr, Mn, Cu, Zn, Y, Nb, Mo, Hf, Ta, W.

Claim 40 (previously presented): A method according to claim 7, said metal surface being zinc or a zinc alloy.

25

Claim 41 (previously presented): A method according to claim ~~9,~~ said chelate

new claim 27

ligands being selected from the group consisting of dicarboxylic acids, tricarboxylic acids, hydroxycarboxylic acids, maleic acid, phthalic acid, terephthalic acid, tartaric acid, citric acid, malic acid, ascorbic acid, acetylacetone, urea, urea derivatives, and mixtures thereof.

Claim 42 (previously presented): A method according to claim 9, said complex ligands being selected from the group consisting of -NR2, -PR2, and -SR compounds, wherein R is H or an organic radical, phosphinates, phosphinate derivatives, and mixtures thereof.

Claim 43 (previously presented): A passivation bath according to claim 15, wherein said chromium (III) is present in a concentration of about 10 g/l to 30 g/l.

new claim

Claim 44 (currently amended): A passivation bath according to claim 18, wherein said additional metal compounds are selected from the group consisting of 1- to 6-~~vaient~~valent metal compounds of Na, Ag, Al, Co, Ni, Fe, Ga, In, lanthanides, Zr, Sc, Ti, V, Cr, Mn, Cu, Zn, Y, Nb, Mo, Hf, Ta, and W;

said anions being selected from the group consisting of halide ions, sulfurous ions, nitrate ions, phosphoric ions, diphosphate ions, linear and cyclic oligophosphate ions, linear and cyclic polyphosphate ions, hydrogen phosphate ions, carboxylic acid anions, and silicon-containing anions;

said silicic acids being colloidal or disperse silicic acids;

said chromogenic agents including metallic chromogenic agents.

MAY 0 2006

said chromium(III) being present in said passivation bath at least in part as a chromium(III) complex having ligand replacement kinetics more rapid than the fluoride replacement kinetics in chromium(III)-fluorocomplexes.

Claim 64 (previously presented): A method according to claim 20, said chromium(III) being present in said passivation bath at least in part as a chromium(III) complex having ligand replacement kinetics more rapid than the fluoride replacement kinetics in chromium(III)-fluorocomplexes.

Claim 65 (previously presented): A conversion layer according to claim 24, said chromium(III) being present in said passivation bath at least in part as a chromium(III) complex having ligand replacement kinetics more rapid than the fluoride replacement kinetics in chromium(III)-fluorocomplexes.

New Claim

Claim 66 (new): A conversion layer comprising chromium(III), said conversion layer being chromium(VI)-free, said conversion layer being a substantially coherent conversion layer on zinc or a zinc alloy, said conversion layer having a thickness of about 100-1000 nm, said conversion layer presenting a corrosion protection of about 100 to 1000 h in the salt spray test according to DIN 50021 SS or ASTM B 117-73 until first attack according to DIN 50961 Chapter 10.

Claim 67 (new): A conversion layer according to claim 66, wherein said conversion layer has across the conversion layer thickness a chromium content greater than about 1 %, in relation to zinc and chromium in the conversion layer and

Claim 75 (new): A conversion layer according to claim 66, having a chromium index greater than 10, the chromium index being defined as the average chromium content (chromium/(chromium + zinc)) in said conversion layer greater than 1% chromium, multiplied by the thickness in nm of said conversion layer.

Claim 76 (new): A conversion layer according to claim 66, said conversion layer being transparent.

Claim 77 (new): A conversion layer according to claim 66, said conversion layer being iridescent.

~~65~~

new Claim 77 Claim 78 (new): A conversion layer according to claim ~~66~~, said chromium(III) being provided via a chromium(III) complex having ligand replacement kinetics more rapid than the fluoride replacement kinetics in chromium(III)-fluorocomplexes.

Claim 79 (new): A conversion layer according to claim 66, said conversion layer having a chromium-rich zone with greater than about 20% chromium, in relation to zinc and chromium in the conversion layer.

MAY 9 2006